



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2012-0079; Directorate Identifier 2012-NE-06-AD]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Division Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for Pratt & Whitney PW4052, PW4152, PW4056, PW4156A, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4158, PW4460, PW4462, PW4164, PW4164C, PW4164C/B, PW4168, and PW4168A turbofan engines with certain high-pressure turbine (HPT) stage 1 front hubs installed. This proposed AD was prompted by Pratt & Whitney's updated low-cycle-fatigue analysis that indicated certain HPT stage 1 front hubs could initiate a crack prior to the published life limit. This proposed AD would require removing the affected HPT stage 1 front hubs from service using a drawdown plan. We are proposing this AD to prevent failure of the HPT stage 1 front hub, which could lead to an uncontained engine failure and damage to the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Pratt & Whitney, 400 Main St., East Hartford, CT 06108; phone: 860-565-7700; fax: 860-565-1605. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: James Gray, Aerospace Engineer, Engine Certification Office, FAA, 12 New England Executive Park, Burlington, MA; phone: 781-238-7742; fax: 781-238-7199; e-mail: james.e.gray@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2012-0079; Directorate Identifier 2012-NE-06-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory,

economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

A PW2000 field event led Pratt & Whitney to re-evaluate the low-cycle fatigue analysis of the PW2000 engine and similar engine models, including the PW4000 engine. Pratt & Whitney's updated analysis indicated that the original grain size requirement specified on the HPT stage 1 front hub design drawing was too large, and may not be sufficient to meet the published life limits. Although we have not received any reports of cracks, parts with the larger grain size may initiate a crack prior to the published life limits. This condition, if not corrected, could result in failure of the HPT stage 1 front hub, which could lead to an uncontained engine failure and damage to the airplane.

Relevant Service Information

We reviewed Pratt & Whitney Service Bulletin (SB) No. PW4ENG 72-795, Revision 2, dated April 5, 2011, and SB No. PW4G-100-72-220, Revision 4, dated September 30, 2011. The SBs list the serial numbers of HPT stage 1 front hubs with part number (P/N) 51L901 that are NOT affected by this AD. However, all serial numbers of HPT stage 1 front hubs with P/N 51L201, P/N 51L201-001, P/N 51L601, and P/N 52L401 are affected.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require removing the affected HPT stage 1 front hubs from service using a drawdown plan.

Costs of Compliance

We estimate that this proposed AD would affect 954 engines installed on airplanes of U.S. registry. About 605 engines use a 20,000 cycles-since new (CSN) life limit for the HPT stage 1 front hub. For these engines, we estimate the lost part life to have a value of about \$25,400 per engine. About 349 engines use a 15,000 CSN life limit. For these engines, we estimate the lost life to have a value of about \$22,013 per engine. Based on these figures, we estimate the total cost of the proposed AD to U.S. operators is \$23,049,537.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority

because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

Pratt & Whitney Division: Docket No. FAA-2012-0079; Directorate Identifier 2012-NE-06-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to the following Pratt & Whitney Division turbofan engines:

(1) PW4052, PW4152, and PW4056 turbofan engines, including models with any dash number suffix, with the following high-pressure turbine (HPT) stage 1 front hub part numbers (P/Ns) installed:

(i) P/N 51L201, or P/N 51L201-001, or P/N 51L601, or P/N 52L401; or

(ii) P/N 51L901 with a serial number (S/N) not listed in Table 9 of the Accomplishment Instructions of Pratt & Whitney Service Bulletin (SB) No. PW4ENG 72-795, Revision 2, dated April 5, 2011.

(2) PW4156A, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4158, PW4460, and PW4462 turbofan engines, including models with any dash number suffix, with the following HPT stage 1 front hub P/Ns installed:

(i) P/N 51L201, or P/N 51L201-001, or P/N 52L401; or

(ii) P/N 51L901 with a S/N not listed in Table 9 of the Accomplishment Instructions of Pratt & Whitney SB No. PW4ENG 72-795, Revision 2, dated April 5, 2011.

(3) PW4164, PW4164C, PW4164C/B, PW4168, and PW4168A turbofan engines with an HPT stage 1 front hub P/N 51L901 installed with a S/N not listed in Table 27A of

the Accomplishment Instructions of Pratt & Whitney SB No. PW4G-100-72-220, Revision 4, dated September 30, 2011.

(d) Unsafe Condition

This AD was prompted by Pratt & Whitney's updated low-cycle-fatigue analysis that indicated certain HPT stage 1 front hubs could initiate a crack prior to the published life limit. This AD requires removing the affected HPT stage 1 front hubs from service using a drawdown plan. We are issuing this AD to prevent failure of the HPT stage 1 front hub, which could lead to an uncontained engine failure and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(f) Removal of HPT Stage 1 Front Hubs From Service

(1) For HPT stage 1 front hubs listed in paragraph (c)(1)(i) and (c)(1)(ii) of this AD, do the following:

(i) If the HPT stage 1 front hub has accumulated 17,000 or fewer cycles-since new (CSN) on the effective date of this AD, remove the HPT stage 1 front hub from service before accumulating 18,000 CSN.

(ii) If the HPT stage 1 front hub has accumulated more than 17,000 CSN on the effective date of this AD, remove the HPT stage 1 front hub from service before accumulating an additional 1,000 cycles-in-service (CIS), or at the next piece-part exposure after the effective date of this AD, whichever occurs first.

(2) For HPT stage 1 front hubs listed in paragraphs (c)(2)(i), (c)(2)(ii), and (c)(3) of this AD, do the following:

(i) If the HPT stage 1 front hub has accumulated 12,700 or fewer CSN on the effective date of this AD, remove the HPT stage 1 front hub from service before accumulating 13,700 CSN.

(ii) If the HPT stage 1 front hub has accumulated more than 12,700 CSN on the effective date of this AD, remove the HPT stage 1 front hub from service before accumulating an additional 1,000 CIS, or at the next piece-part exposure after the effective date of this AD, whichever occurs first.

(g) Installation Prohibition

After the effective date of this AD, do not install or reinstall into any engine any HPT stage 1 front hubs listed in paragraph (c)(1)(i) and (c)(1)(ii) of this AD that are at piece-part exposure and exceed 18,000 CSN, or any HPT stage 1 front hubs listed in (c)(2)(i), (c)(2)(ii), and (c)(3) of this AD that are at piece-part exposure and exceed 13,700 CSN.

(h) Definition

For the purpose of this AD, piece-part exposure means that the part is completely disassembled and removed from the engine.

(i) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(j) Related Information

(1) For more information about this AD, contact James Gray, Aerospace Engineer, Engine Certification Office, FAA, 12 New England Executive Park, Burlington, MA; phone: 781-238-7742; fax: 781-238-7199; e-mail: james.e.gray@faa.gov.

(2) For service information identified in this AD, contact Pratt & Whitney, 400 Main St., East Hartford, CT 06108; phone: 860-565-7700; fax: 860-565-1605.

(3) You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on March 14, 2012.

Peter A. White,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

[FR Doc. 2012-6965 Filed 03/22/2012 at 8:45 am; Publication Date: 03/23/2012]